## CURRENT STATUS OF THE CLAIMS

***In the Claims***

The following is a marked-up version of the claims with the language that is underlined ("___") being added and the language that contains strikethrough ("—") being deleted:

1. (Previously Presented) A multielectrode array for receiving voltage signals from neurons, the multielectrode array comprising: A substrate; At least two electrodes partially contained in said substrate, each of said at least two electrodes having a carbon fiber with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue, and An electrical insulator covering at least a portion of each of the at least two electrodes.

2. (Original) The multielectrode array as in claim 1, where each of said at least two carbon fibers has any combination of at least one of the characteristics independently selected from the group consisting of: a coating on the exposed end, a sharpened tip, and varied length of the exposed end.

3-10. (canceled)

11. (Previously Presented) A multielectrode array for receiving voltage signals from neurons, the multielectrode array comprising: A substrate; At least two electrodes partially contained in said substrate, each of said at least two electrodes having a biocompatible wire with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue, and said at least two electrodes being spaced from one another so that the spacing between the centers of said exposed ends of each said biocompatible wire does not exceed 45 microns; and An electrical insulator covering at least a portion of each of the at least two electrodes.

12-24. (canceled)

25. (Original) A multielectrode array for receiving voltage from neurons and stimulating neurons with voltage signals, the array comprising: A substrate; At

least one receiving electrode partially contained in said substrate, each said at least one receiving electrode having a carbon fiber with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue, said carbon fiber's unexposed end coupled to a metal wire's first end, said metal wire's second end being coupled to the input to a pre-amplifier; At least one stimulating electrode partially contained in said substrate, each said at least one stimulating electrode having a carbon fiber with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue, said carbon fiber's unexposed end coupled to a metal wire's first end, said metal wire's second end being coupled to the input to a current generator; and An electrical insulator covering at least a portion of the said at least one receiving electrode and the said at least one stimulating electrode.

26. (Original) The multielectrode array as in claim 25, where each of said at least two carbon fibers has any combination of at least one of the characteristics independently selected from the group consisting of: a coating on the exposed end, a sharpened tip, and varied length of the exposed end.

27-30. (canceled)

31. (Original) A multielectrode array for stimulating neurons with voltage signals and for receiving voltage signals from neurons, the multielectrode array comprising: A substrate; At least one stimulating electrode partially contained in said substrate, each at least one stimulating electrode having a biocompatible wire with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue and said unexposed end coupled to the input to a current generator; At least one receiving electrode partially contained in said substrate, each at least one receiving electrode having a biocompatible wire with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue and said unexposed end coupled to the input to a pre-amplifier; and An electrical insulator covering at least a portion

of the said at least one receiving electrode and the said at least one stimulating electrode.

32. (Original) The multielectrode array as in claim 31, where each of said biocompatible wires has any combination of at least one of the characteristics independently selected from the group consisting of: a coating on the exposed end, a sharpened tip, and varied length of the exposed end.

33-36. (canceled)

37. (Original) A multielectrode array for receiving voltage from neurons, stimulating neurons with voltage signals, and for providing feed-back between neurons, the array comprising: Said substrate; At least one receiving electrode partially contained in said substrate, each said at least one receiving electrode having a carbon fiber with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue, said carbon fiber's unexposed end coupled to a metal wire's first end, said metal wire's second end being coupled to the input to a pre-amplifier; At least one stimulating electrode partially contained in said substrate, each said at least one stimulating electrode having a carbon fiber with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue, said carbon fiber's unexposed end coupled to a metal wire's first end, said metal wire's second end being coupled to the input to a current generator; At least one feedback loop constituting a system partially contained in said substrate, containing a first carbon fiber with an exposed end capable of being embedded in neural-tissue, said first carbon fiber's unexposed end coupled to a first metal wire's first end, said first metal wire's second end coupled to the input to a pre-amplifier, the output of said pre-amplifier coupled to the input to a band-pass amplifier, the output from said band-pass amplifier coupled to the input to an output limiter, the output of said output limiter coupled to a current generator, said current generator coupled to the said second end of a second metal wire and also to a current supply, the said first end of said second metal wire coupled to the unexposed end of a second carbon fiber; the said

exposed end of said second carbon fiber capable of being embedded in neural tissue; and Said electrical insulator for each of the said at least one receiving electrode, said at least one stimulating electrode, and said at least one feedback loop.

38. (Original) The multielectrode array as in claim 37, where each of said at least two carbon fibers has any combination of at least one of the characteristics independently selected from the group consisting of: a coating on the exposed end, a sharpened tip, and varied length of the exposed end.

39. (Original) The multielectrode array as in claim 37, where the output limiter is deleted.

40-45. (canceled)

46. (Original) A multielectrode array for stimulating neurons with voltage signals and for receiving voltage signals from neurons, and for providing feed-back between neurons, the multielectrode array comprising: A substrate; At least one stimulating electrode partially contained in said substrate, each at least one stimulating electrode having a biocompatible wire with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue and said unexposed end coupled to the input to a current generator; At least one receiving electrode partially contained in said substrate, each at least one receiving electrode having a biocompatible wire with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said exposed end capable of being embedded in neural tissue and said unexposed end coupled to the input to a pre-amplifier; At least one feedback loop constituting a system partially contained in said substrate, containing a first biocompatible wire with an exposed end extending beyond the substrate, an unexposed end within the substrate, and a center, said first biocompatible wire's unexposed end coupled to the input to a pre-amplifier, the output of said pre-amplifier coupled to the input to a band-pass amplifier, the output from said band-pass amplifier coupled to the input to an output limiter, the output of said output limiter coupled to a current generator, said

current generator coupled to the second end of a second biocompatible wire and also to a current supply, the said first end of said second biocompatible wire capable of being embedded in neural tissue; and Said electrical insulator for each of the said at least one receiving electrode, said at least one stimulating electrode, and said at least one feedback loop; and An electrical insulator covering at least a portion of the said at least one receiving electrode and the said at least one stimulating electrode.

47. (Original) The multielectrode array as in claim 46, where each of said biocompatible wires has any combination of at least one of the characteristics independently selected from the group consisting of: a coating on the exposed end, a sharpened tip, and varied length of the exposed end.

48. (Original) The multielectrode array as in claim 46, where the output limiter is deleted.

49-54. (canceled)

55. (Original) A biosensing device, comprising: A substrate; At least two biosensing electrode circuits, each said at least two biosensing electrode circuit containing a biosensing electrode having a carbon fiber with an exposed end extending beyond the substrate, an exposed end within the substrate, and a center, said carbon fiber being coupled with the first end of a metal wire, said metal wire's second end-being coupled with an amperometry device, said amperometry device being coupled with a voltage source and a pre-amplifier, said voltage source being coupled with a reference wire; and An electrical insulator covering at least a portion of each of the biosensing electrodes and the reference wire.

56. (Original) The biosensing device as in claim 55, where each of said at least two carbon fibers has any combination of at least one of the characteristics independently selected from the group consisting of: a coating on the exposed end, a sharpened tip, and varied length of the exposed end.

57-60. (canceled)

61. (Original) A biosensing device, comprising: A substrate; At least two biosensing electrode circuits, each of said at least two biosensing electrode circuits containing a biosensing electrode having a biocompatible wire with an exposed end extending beyond the substrate, an exposed end within the substrate, and a center, said biocompatible wire being coupled with an amperometry device, said amperometry device being coupled with a voltage source and a pre-amplifier, said voltage source being coupled with a reference wire, and said at least two biosensing electrodes being spaced from one another so that the spacing between the centers of said exposed ends of each said carbon fiber does not exceed 20 microns; and An electrical insulator covering at least a portion of each of the biosensing electrodes and the reference wire.

62. (Original) The biosensing device as in claim 61, where said biocompatible wire has any combination of at least one of the characteristics independently selected from the group consisting of: a coating on the exposed end, a sharpened tip, and varied length of the exposed end.

63-65. (canceled)

66. (Previously Presented) The multielectrode array as in claim 1, wherein the at least two electrodes are selected from the following: receiving electrodes and stimulating electrodes.

67. (Previously Presented) The multielectrode array as in claim 1, wherein said at least two electrodes being spaced from one another so that the spacing between the centers of said exposed ends of each said carbon fiber does not exceed 20 microns.

68. (Previously Presented) The multielectrode array as in claim 1, wherein said at least two receiving electrodes being spaced from one another so that the spacing between the centers of said exposed ends of each said carbon fiber does not exceed 45 microns.